

**UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF VERMONT**

UNITED STATES OF AMERICA and UNITED  
STATES ENVIRONMENTAL PROTECTION  
AGENCY,

*Plaintiffs,*

v.

STATE OF VERMONT, et al.,

*Defendants,*

and

NORTHEAST ORGANIC FARMING  
ASSOCIATION OF VERMONT AND  
CONSERVATION LAW FOUNDATION,

*Intervenor-Defendants.*

No. 2:25-cv-00463

CHAMBER OF COMMERCE OF THE UNITED  
STATES OF AMERICA and AMERICAN  
PETROLEUM INSTITUTE,

*Plaintiffs,*

and

STATE OF WEST VIRGINIA, et al.,

*Intervenor-Plaintiffs,*

v.

JULIE MOORE, et al.,

*Defendants,*

and

NORTHEAST ORGANIC FARMING  
ASSOCIATION OF VERMONT AND  
CONSERVATION LAW FOUNDATION,

*Intervenor-Defendants.*

No. 2:24-cv-01513

**BRIEF OF ECONOMISTS JOSEPH E. STIGLITZ ET AL.  
AS AMICI CURIAE**

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## INTRODUCTION AND SUMMARY OF ARGUMENT

*Amici*, economists and scholars, respectfully submit this brief to provide relevant background to the Court concerning the economic consequences of the Vermont Climate Superfund Act (“Vermont Act” or “Act”). In their court filings in this case, industry groups, the United States, and 24 state intervenors allege that the Act will cause a host of economic impacts, including increased energy prices, reduced energy production, and decreased government revenues. In this *amicus* brief, we offer our view as economic experts on the plausibility of these assertions. We take no position on the legal issues present in this case, nor on the substantive merits of the Vermont Act.

The Act imposes a one-time, retrospective payment on a small set of fossil fuel companies for their pro-rata share of greenhouse gas emissions from 1995 to 2024. These one-time assessments are classic “fixed costs.” Fixed costs based on past pollution do not increase future production costs. Accordingly, the Act will not shift costs to consumers by increasing the price of crude oil or the price of gasoline at the pump. Nor will liability under the Act reduce firms’ energy production levels or impact government tax revenues.

We draw these conclusions based on basic and well-established principles of economics. In a market-based economy, “[p]etroleum prices are determined by market forces of supply and demand.”<sup>1</sup> According to the American Petroleum Institute, the primary factors that drive consumer gasoline prices are global crude prices, refining, distribution, and marketing costs, and local taxes

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<sup>1</sup> *Gas Prices Explained* (hereinafter “API Explainer”), American Petroleum Institute, [https://web.archive.org/web/20250703030425/https://www.api.org/oil-and-natural-gas/energy-primers/gas-prices-explained?utm\\_source=AD&utm\\_medium=FB\\_DISPLAY&utm\\_campaign=AMPET-0031&utm\\_content=FB1](https://web.archive.org/web/20250703030425/https://www.api.org/oil-and-natural-gas/energy-primers/gas-prices-explained?utm_source=AD&utm_medium=FB_DISPLAY&utm_campaign=AMPET-0031&utm_content=FB1) [<https://perma.cc/BBF7-6KDL>] (last visited Aug. 19, 2025) (emphasis added).

and fees.<sup>2</sup> None of these factors are impacted by the Vermont Act’s one-time payments for past conduct.<sup>3</sup>

Similarly, the Act will not cause energy production (nor downstream tax and leasing revenues) to decrease. Companies produce the level of supply that maximizes their profits. The profit-maximizing level of supply today is based on the cost of production, consumer demand, and taxes levied on *today’s* consumption and production. Neither factor is affected by a one-time payment, which costs the same no matter how many barrels of oil or units of energy a firm produces in the future. Regardless of liability under the Act, companies will continue to produce the amount that maximizes their profits.

The United States and state intervenors (“government plaintiffs”) have claimed that they will be harmed because the Act will result in higher oil prices and reduced production (which will decrease tax and leasing revenues). These allegations conflict with “commonsense economic principles.” See *Diamond Alternative Energy, LLC v. Env’t Prot. Agency*, 145 S. Ct. 2121, 2136 (2025) (Kavanaugh, J.) (“When third party behavior is predictable, commonsense inferences may be drawn.”). Because the payments required by the Vermont Act are based on past conduct and do not affect incentives going forward, the companies and their shareholders will absorb these costs without causing economic harm to consumers or governments.

### INTEREST OF AMICI CURIAE

*Amici* are economists who study how government policies affect markets, development, and well-being. We believe that legal and policy decisions should be informed by sound economic

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<sup>2</sup> *Id.* (“The primary factors impacting gasoline prices are global crude oil cost (50%), refining costs (25%), distribution and marketing costs (11%) and federal & state taxes (14%).”).

<sup>3</sup> While the Vermont Superfund assessment could perhaps be characterized as a “local tax” or “fee,” it differs from those that affect pricing (either demand or supply) because it affects neither the marginal cost of production nor the marginal revenue received, and thus does not affect either demand or supply.

analysis and evidence. Our interest in this case is to inform the Court of the economic consequences of the Act so that the Court’s legal analysis can be based on an accurate picture of “commonsense economic realities,” rather than the government plaintiffs’ implausible and hyperbolic assertions of economic harm. *Diamond Alternative Energy, LLC*, 145 S. Ct. at 2136.

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## ARGUMENT

### I. THE GOVERNMENT PLAINTIFFS ALLEGE THAT THE VERMONT ACT WILL CAUSE ECONOMIC HARM TO CONSUMERS AND GOVERNMENTS

The government plaintiffs allege that the Vermont Act’s one-time fee, paid by affected fossil fuel producers, will impact the energy market in a manner that indirectly causes economic harm to governments and their citizens.<sup>4</sup>

*First*, the government plaintiffs assert that the Act’s costs will be passed on to consumers, injuring citizens and governments by imposing higher energy prices. *See, e.g.* Dkt. 1, Case No. 2:25-cv-00463 (D. Vt.) (“U.S. Compl.”) ¶ 10 (alleging “parens patriae standing to protect the economic well-being of its citizens”); *id.* ¶ 82 (the Act will “increase energy costs for consumers and businesses nationwide, as these costs are passed through the interstate energy market”); Dkt. 31, Case No. 2:24-cv-01513 (D. Vt.) (“Intervenor States’ Compl.”) ¶ 1 (the Act will “raise[] prices on consumers, in *other* States”); *id.* ¶ 51 (alleging standing for “substantive pecuniary harms on the States themselves and the citizens of the Plaintiff States in the form of higher energy prices”); *id.* ¶ 125 (firms will begin “passing increased costs along to their customers”); *id.* ¶ 256 (“[F]ines would be passed on to the public.”).

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<sup>4</sup> The industry group plaintiffs also partially rely on the same theory of economic harm. *See* Dkt. 1, Case No. 2:24-cv-01513 (D. Vt.) (“Chamber of Commerce and API Compl.”) ¶ 151 (alleging that the Act “unilaterally impact[s] energy production and cost throughout the country”).

*Second*, the complaints assert that payments under the Act will cause a reduction in energy supply and make energy less available to consumers and governments, which in turn will lower government revenues. *See* U.S. Compl. ¶ 56 (the Act will cause “insufficient energy production”); *id.* ¶ 61 (the Act will “threaten revenue from federal leasing”); Intervenor States’ Compl. ¶ 54 (alleging standing based on “impending loss of tax revenue”); *id.* (alleging standing as purchasers who will face “less affordable and less available” energy); *id.* ¶ 60 (tax revenues will be “diminished by lowered production”); *id.* ¶ 68 (the Act will “threaten” a “significant source of tax revenue”); *id.* ¶ 75 (“Plaintiff States will suffer pecuniary injuries in the form of lost taxes.”).

*Amici* are experts who can aid the Court in evaluating the plausibility of the plaintiffs’ assertions. Economic theory provides a framework and tools to understand how the market actually sets prices and levels of production, the factors that contribute to them, and the impact of one-time payments for past conduct like those imposed by the Vermont Act.

## **II. ENERGY COMPANIES SET PRICES AND PRODUCTION LEVELS TO MAXIMIZE THEIR PROFITS**

Firms in a market economy can be expected to set prices and production levels (and make other decisions) with the goal of maximizing their profits. The companies affected by the Vermont Act are typical firms in this way: they are in business to generate returns for their owners, not to engage in charitable activities. The price and production levels that maximize profits are based on three factors:

- (1) Production costs (supply), *i.e.*, the costs firms incur to produce their products.

Production costs might include the cost of leasing access to relevant resources or of buying inputs; the costs of operations, including labor and the maintenance of machinery; the costs of distribution, marketing, and capital depreciation.

(2) Demand, *i.e.*, how much consumers are willing to pay for firms' products. Demand can be affected by the overall desirability of the product, the availability of substitutes, or the existence of government subsidies that affect consumer cost.

(3) Market structure, *i.e.*, whether the firm operates in a competitive market. The profit maximizing price and production level for a firm will depend on whether they face competition from other firms. Monopoly firms will maximize their profits by charging prices that are higher than their marginal costs,<sup>5</sup> which will lead to levels of production that are lower than would be found in competitive markets. In competitive markets, the market clearing price will equalize marginal production costs and marginal demand.<sup>6</sup>

These three factors—production costs (*i.e.* costs of supply), demand, and market structure—determine the prices and production levels that maximize a firm's profits.

With limited exceptions that are not relevant in this case, companies that operate in the marketplace are free to set their own prices and production levels.<sup>7</sup> *See* JOSEPH E. STIGLITZ & CARL E. WALSH, *PRINCIPLES OF MICROECONOMICS* 155-60 (4th ed. 2006). Accordingly, they can raise or lower prices and change production levels as they wish, with the goal of maximizing their profits. However, a firm cannot set both price and output sold at any given time, and market supply

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<sup>5</sup> This is true unless the monopoly firm is able to perfectly price discriminate. Price discrimination refers to the ability of firms to charge different prices to different consumers based on the consumers' willingness to pay. This is difficult to do in practice, and in any case is irrelevant to the Act. *See* N. GREGORY MANKIW, *PRINCIPLES OF MICROECONOMICS* 303-08 (8th ed. 2018).

<sup>6</sup> For example, retail gasoline markets are often quite competitive, with market participants competing on price alongside product differentiation through branded fuel formulations and proprietary additive packages. *See generally* Reid B. Taylor & Erich Muehlegger, *The Effects of Competition in the Retail Gasoline Industry*, (Nat'l Bureau of Econ. Rsch., Working Paper No. 33569, 2025) (analyzing competition in retail gasoline in California and reviewing relevant literature).

<sup>7</sup> Regulated monopolies and the minimum wage are two contexts where the government limits the ability of firms and individuals to set prices. Although some actors within energy markets are subject to ratemaking processes in certain jurisdictions, these entities serve different roles than the responsible parties covered by the Act. The fact that some entities within the energy market are constrained in this way is not relevant for our analysis.

and demand set the market price and total quantity sold. For normal goods, including gasoline, lower prices mean that more of the good will be sold (but with less revenue per unit). Higher prices have the reverse effect: the firm makes more revenue per unit sold, but there are fewer units sold. At any point, a firm is free to alter its prices or the quantities it sells if it believes that, by doing so, the benefits to the firm (more units sold or higher per unit revenue) will exceed the costs (lower per unit revenue or fewer units sold). The prices and production levels that maximize profits sit on a knife's edge—if a firm raises or lowers prices (or production levels) from the profit-maximizing price or production level, it will reap lower profits.

### **III. GOVERNMENT POLICY CAN AFFECT PRICES AND PRODUCTION LEVELS BY INFLUENCING PRODUCTION COSTS, DEMAND, OR MARKET STRUCTURE**

There are many ways that government policy can affect prices or production levels in a country. Government policy can affect demand for a firm's product, for example, by putting in place subsidies that lower the after-tax cost for consumers, or by carrying out education campaigns that alert the public about the health risks of a product. Subsidies will increase demand for a product, resulting in higher pre-subsidy prices (*i.e.* the prices charged by firms) as well as higher levels of production. Education campaigns can decrease demand if members of the public decide, for example, to quit using a product (such as cigarettes) due to health concerns. Reduced demand will lead to lower prices and lower production levels.

An environmental regulation that increases the cost of production for a firm can be expected to increase the price and reduce the level of production. The government can also impose taxes, fees, or liabilities that increase the costs of production, or could provide subsidies or other support that decrease the cost of production. These effects occur whenever a government policy

affects the *marginal cost of production*. Unlike fixed costs, marginal costs of production are those that increase or decrease with the level of production at the relevant point in time.

Government policy can also affect market structure. When the government breaks up a monopoly or successfully bans anti-competitive behavior, that will result in lower prices and higher production levels, as the market shifts from a monopoly equilibrium to a competitive equilibrium.

These are the three channels through which government policy affects prices and production levels: by affecting demand for a product (*e.g.* subsidies or public health campaigns), by affecting marginal production costs (*e.g.* via regulation, taxes, or prospective liability), or by affecting market structure (*e.g.* breaking up a monopoly or enforcing anti-collusion laws). The government can also directly regulate prices or production levels, although it does so only rarely in the United States.<sup>8</sup>

#### **IV. THE ACT IMPOSES A ONE-TIME FIXED COST BASED ON PAST BEHAVIOR**

With these basic economic principles in mind, we turn to an analysis of the Vermont Act's economic effects. We begin by describing the nature of the Act's payments themselves. The Act creates a Climate Superfund Cost Recovery Program Fund to provide funding for climate change adaptation projects in Vermont. Following the "polluter pays" model, the Act empowers the state to issue a "cost recovery demand" to responsible companies, defined as firms whose extraction or refining of fossil fuels caused at least 1 billion metric tons of greenhouse gas emissions from 1995 to 2024. *See* 10 V.S.A. § 596 (22). The cost recovery demand is based on the contribution of

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<sup>8</sup> The minimum wage is the most important price control. Regulated monopolies such as electricity generators in regulated markets are also subject to rate restrictions. Neither of these exemptions is relevant to the Vermont Act.

responsible companies to the stock of global greenhouse gas emissions during the covered period (i.e. 1995 to 2024). *Id.* §§ 596 (8), 598 (a)(1), 598 (b).

The Act's one-time regulatory payment, based exclusively on *past* conduct, is what economists refer to as a "fixed cost." *See* N. GREGORY MANKIW, PRINCIPLES OF MICROECONOMICS 255 (8th ed. 2018). The Act's cost to a company does not change based on future conduct or greenhouse gas emissions. An oil company's liability, for example, remains the same whether, in the future, the company produces 0, 1, or 1,000,000 barrels of oil. *Id.* The Act therefore does not impact a firm's marginal cost of production, which, again, is the amount of money it costs the firm to produce one additional barrel of oil, ton of coal, or cubic foot of natural gas. *Id.* at 6-7, 255-56.

The Act's economic effects are fundamentally different from interventions that concern future emissions, such as a carbon tax or lawsuits asserting prospective tort liability. For example, a carbon tax applied to oil companies would affect their marginal production costs because their tax bill would increase with each additional barrel of oil produced. The same is true for prospective tort liability, which would continue to increase as a firm's contribution to greenhouse gas emissions increases. An example of such tort liability is a lawsuit brought by New York under state common law, seeking damages from oil companies along with an injunction to cease activities contributing to climate change. *See City of New York v. Chevron Corp.*, 993 F.3d 81 (2d Cir. 2021). An injunction to reduce production or emissions clearly would affect the future conduct of affected companies. If every additional ton of emissions carried the prospect of tort liability, that would be an increase in marginal costs that would raise prices and likely also reduce output.

Unlike a carbon tax or ongoing tort liability, the Act does not impose extra costs or place any barriers on future conduct. The effects of a carbon tax or ongoing tort liability on prices or production levels would depend on several factors, including the "elasticity" of demand, *i.e.* the

degree that consumer behavior responds to price changes. These factors are irrelevant to the Vermont Act because the Act imposes a backward-looking fixed cost that will not affect the incentives of covered firms to produce or sell their products.<sup>9</sup>

## **V. THE GOVERNMENT PLAINTIFFS’ ALLEGATIONS OF ECONOMIC HARM ARE IMPLAUSIBLE**

### **A. The Act Will Not Affect Prices or Production Levels Through Production Costs**

Plaintiffs have alleged that the Act imposes assessments of “hundreds of millions or even billions of dollars.”<sup>10</sup> Chamber of Commerce and API Compl. ¶ 10. As discussed above, *supra* Section IV, regardless of its extent, fossil fuel companies will treat the Act’s retrospective payment as a fixed cost, because it does not impact their marginal cost—*i.e.*, the prospective cost of producing one additional barrel of oil or other unit of energy. Since a fixed cost does not impact a company’s marginal cost, it plays no role in determining the profit-maximizing price or production levels for oil or gasoline. *See* WALTER NICHOLSON, INTERMEDIATE MICROECONOMICS AND ITS APPLICATION 205 (9th ed. 2004); Robert A. Ritz, *The Simple Economics of Asymmetric Cost Pass-Through* 10 n.11 (MIT Ctr. for Energy and Env’t Pol’y Rsch., CEEPR Working Paper 2015-009 2015), <https://ceepr.mit.edu/wp-content/uploads/2021/09/2015-009.pdf>. Liability under the Act will thus not cause prices to rise or production levels to decline. *Contra* U.S. Compl. ¶¶ 56, 82; Intervenor States’ Compl. ¶¶ 1, 54, 60, 125, 256.

In the existing market, before the enactment of the Vermont Act, all liable companies (“responsible parties” in the language of the Act) were already setting prices and production levels

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<sup>9</sup> The same economic analysis holds regardless of whether other states adopt similar statutes.

<sup>10</sup> Companies that did not exceed the threshold of one billion metric tons of greenhouse gases from 1995-2004 will not face any assessment. We take no position on the plausibility of the plaintiffs’ assertions concerning the extent of the total assessment for responsible parties.



at the level they believe maximized their profits. If a company attempts to “pass on” the Superfund fee to consumers by raising its price beyond this equilibrium price, it should expect to lower profits, rather than increase them. The same would hold for a decision to reduce production levels. This would not be economically rational behavior.

**B. The Act Will Not Affect Prices or Production Costs Through Demand**

The Act will have no effect on consumer demand for gasoline or other petroleum products. As just noted, the fee will not be “passed along” to consumers and therefore will not affect their behavior. Nor will the fee change the benefits that consumers derive from gasoline or other petroleum products, or affect the availability or price of substitutes. There is no economically plausible pathway through which the behavior of rational, utility maximizing consumers will be affected by the Vermont Act’s fee.

**C. The Act Will Not Affect Prices or Production Costs through Changes to Market Structure**

There is a \$2 trillion global market for crude oil.<sup>11</sup> Factors that affect this market include production agreements among certain oil producing countries, geopolitical instability in Eastern Europe, the general state of the global economy (such as the recovery from the COVID-19 pandemic), and U.S. foreign policy. *See* API Explainer. The Act’s payments are too attenuated and affect too limited a universe of companies to disrupt the global crude oil market. *Contra, e.g.*, U.S. Compl. ¶¶ 56, 61, 82; State Intervenor’s Compl. ¶¶ 54, 75, 148, 149, 176, 256.

The Act only applies to companies that emitted more than one billion metric tons of greenhouse gases from 1995-2024. These are large companies with significant operating revenue

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<sup>11</sup> *See* Peter H. Howard & Minhong Xu, *Enacting the “Polluter Pays” Principle*, Institute for Policy Integrity at New York University School of Law (Nov. 2022), [https://policyintegrity.org/files/publications/Polluter\\_Pays\\_Policy\\_Brief\\_v2.pdf](https://policyintegrity.org/files/publications/Polluter_Pays_Policy_Brief_v2.pdf) at 14 (explaining that the average total revenue of all large global oil firms from 2020-2021 was \$2.6 trillion, and the total market capitalization of those firms was \$3.8 trillion in October 2022).

and large market capitalizations. Based on recent performance, such payments are unlikely to threaten these companies, given that the one-time payments may represent only a fraction of a liable company's profits for a single year.<sup>12</sup> Indeed, no responsible party has been identified as so fragile that the payment would be overwhelming. Furthermore, otherwise profitable firms do not simply stop operations because their debt burden becomes too high—rather, they continue in business to maximize their ability to pay off their debtors, even if past liabilities cannot be paid in full. And even the larger firms that are likely to make payments under the Act represent such a small fraction of global production that, in the hypothetical (and unrealistic) scenario in which they were to cease production, the impact on global prices and production would be negligible.

Other state and federal laws also provide an additional layer of protection. Even in a market with considerable consolidation, firms are subject to antitrust, competition, and consumer protection law that prohibits collusion or other efforts to extract monopoly rents from consumers. A claim that the Vermont Act would affect consumer prices via market structure would rely on two implausible predictions: first, that the law would cause substantial market consolidation; and second, that remaining firms would engage in illegal anticompetitive behavior.

#### **D. The Act Will Not Reduce Firms' Capital Investments or Diminish Their Global Competitiveness**

For the reasons discussed above, the Vermont Act's one-time payment will not reduce the capital investments made by the affected companies or diminish their global competitiveness. The Act does not affect covered firms' incentives to invest in production, nor does it affect their access

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<sup>12</sup> For example, ExxonMobil made \$36 billion in profits in 2023 and \$33.7 billion in 2024 alone. *See* Press Release, ExxonMobil, ExxonMobil announces 2024 results (Jan. 31, 2025), [https://corporate.exxonmobil.com/news/news-releases/2025/0131\\_exxonmobil-announces-2024-results](https://corporate.exxonmobil.com/news/news-releases/2025/0131_exxonmobil-announces-2024-results). In 2023 during a downturn in crude oil prices, ExxonMobil, Chevron, Shell, BP, and TotalEnergies still spent over \$114 billion on stock buybacks and dividends. *See* Kevin Crowley, *Big Oil's Blockbuster \$114 Billion Investor Payout is Most Ever*, BLOOMBERG (Feb. 7, 2024), <https://www.bloomberg.com/news/articles/2024-02-07/big-oil-pays-out-record-114-billion-in-share-buybacks-and-dividends>.

to capital markets. Firms can therefore be expected to maintain the level of investment that they would have absent the Act. Nothing in the Act affects covered firms' competitiveness, either domestically or globally, because it does not burden future production in any way.

There is also no plausibility to the contention that the Act will significantly affect expectations of further regulatory actions *beyond what would otherwise have been expected*, such that the Act might diminish investment. Plaintiffs have provided no evidence (indeed no argument) to that effect. Rational expectations of future actions will be grounded on firms' beliefs concerning advances in climate science, the evolution of climate related events, the national and global acceptance of the findings of climate science, the evolution of national and global politics to take actions in response to climate related events and the development of climate science, and a host of other geo-economic and geo-political events. Any impact the Act could have on firms' expectations, that would have a significant effect on pricing and production today, is *de minimis* to non-existent.

### **CONCLUSION**

The Vermont Act attempts to shift the burden of expenses for mitigating climate change impacts (such as rising sea levels, more intense storms, and hotter temperatures) from the public to certain private parties that contributed to greenhouse gas emissions in the past. Because the Act assigns a one-time fee based on past behavior, it will not increase costs to consumers, nor decrease energy production levels or downstream government tax revenues. This conclusion is based on established and well-accepted economic principles concerning how private firms make decisions in the marketplace. Given the nature of the Vermont Act, the harms proposed by the government plaintiffs are inconsistent with both economic theory and experience.

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